
Application of PGE2/BPV, a muscle stem cell targeting therapeutic, to the treatment of COVID-19 associated diaphragm atrophy

Grant Award Details

Application of PGE2/BPV, a muscle stem cell targeting therapeutic, to the treatment of COVID-19 associated diaphragm atrophy

Grant Type: Discovery Research Projects

Grant Number: DISC2COVID19-11920

Project Objective: Selection of a candidate muscle stem cell targeting therapeutic for the treatment of COVID-19 associated diaphragm atrophy.

Investigator:

Name:	Helen Blau
Institution:	Stanford University
Type:	PI

Disease Focus: COVID-19, Infectious Disease

Human Stem Cell Use: Adult Stem Cell

Award Value: \$149,996

Status: Active

Grant Application Details

Application Title: Application of PGE2/BPV, a muscle stem cell targeting therapeutic, to the treatment of COVID-19 associated diaphragm atrophy

Public Abstract:**Research Objective**

Intramuscular delivery of 2 repurposed FDA approved drugs to activate diaphragm stem cells to augment regeneration and restore strength to COVID-19 patients with diaphragm atrophy from ventilation.

Impact

Currently effective treatments are lacking for diaphragm atrophy due to ventilation to treat COVID-19. Our treatment will promote full recovery of such patients.

Major Proposed Activities

- To establish efficacy of PGE2/BPV treatment to stimulate stem cells to regenerate muscle in a murine muscle atrophy model that mimics the atrophy seen in COVID-19 patients.
- To demonstrate sensitivity of human diaphragm muscle stems cells to PGE2
- To assess the efficacy of PGE2:BPV formulation in enhancing stem cell function to counter diaphragm atrophy in ventilator induced diaphragm dysfunction

Statement of Benefit to California:

3500 Californian COVID-19 patients have been hospitalized, and 1200 require the Intensive Care Unit (ICU). While in the ICU, many are put on mechanical ventilation as they cannot breathe independently. Even relatively brief periods of MV result in diaphragm weakness that makes it difficult to wean patients from the ventilator. COVID-19 patients as they spend weeks on MV. Our therapy stimulates diaphragm stem cells to promote regeneration. This will improve recovery and decrease healthcare costs.

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